

Appendix E
Noise Report

E-1

**Preliminary Environmental Noise Study for the Proposed NorthLake VTTM 51852
Development in the County of Los Angeles, prepared by
Wieland Associates, Inc., May 2004**

***ENVIRONMENTAL NOISE STUDY
FOR THE PROPOSED
NORTHLAKE VTTM 51852 DEVELOPMENT
IN THE COUNTY OF LOS ANGELES***

***Project File 563-04
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Preliminary Report for Review Only

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1 Executive Summary

The purpose of this study is to identify and assess the potential noise impacts associated with the construction and operation of the proposed Northlake VTTM 51852 development, part of the Northlake Specific Plan area in the County of Los Angeles. A Specific Plan was approved in 1991 for a development consisting of nearly 4,000 residential units. VTTM 51852 represents one portion of this development and consists of 1,265 single-family detached homes and 480 condominium units.

Based on the County's noise standards and the CEQA guidelines, a significant impact will be assessed if any of the following conditions occurs:

- ◆ The noise level generated by the project traffic increases the CNEL by 3 dB or more (a noticeable change) at existing residential areas.
- ◆ The interior CNEL exceeds 45 dB within any proposed residence constructed as part of the project.
- ◆ The construction or operation of the project exposes people to excessive groundborne vibration or groundborne noise levels.

In order to identify the existing noise environment, measurements were taken at six locations throughout the study area. These measurements, together with traffic data provided by Austin-Foust Associates were used to calibrate a traffic noise model for the area. The introduction of new noise sources, such as construction activities and increased traffic, will result in a change to the noise environment at properties in the vicinity of the project. Based on our analysis, the following conclusions can be made with respect to the impact of the proposed project on the surrounding community:

- ◆ Construction of the project will not create a significant impact.
- ◆ Traffic noise will increase by more than 3 dB at residences adjacent to Lake Hughes Road east of Castaic Road, and at residences adjacent to Ridge Route Road from Castaic Road to Pine Crest Place. This may be a significant impact if noise control was not considered in the original design of the homes.
- ◆ The construction and operation of the project will not expose people to excessive groundborne vibration or groundborne noise levels.

In addition, it is concluded that a significant impact will occur on the project site at future homes adjacent to Ridge Route Drive with line-of-sight to the I-5 freeway, where interior traffic noise levels will exceed the County's standard of 45 dB unless appropriate mitigation is applied.

The following measures are recommended to mitigate the significant impacts associated with the project.



1. Appropriate mitigation measures should be incorporated into the design of the residences adjacent to Ridge Route Drive and with line-of-sight to I-5 in order to reduce the interior CNEL to 45 dB or less. Such measures may include: setbacks from the street, walls or berms adjacent to the street, mechanical ventilation, and/or sound-rated windows and doors. An acoustical study should be required as part of the final design for all proposed residences adjacent to Ridge Route Road and the freeway in order to determine the exact mitigation measures necessary to achieve compliance with the County's interior CNEL standard.
2. Construction activities should be scheduled only between 7 a.m. and 7 p.m. Monday through Saturday. No construction should be permitted on Sundays or legal holidays.
3. Internal combustion engines used for construction purposes should be equipped with a properly operating muffler of a type recommended by the manufacturer. Impacts tools should be shielded per manufacturer's specifications.
4. Noisy construction equipment items should be located as far as practicable from the surrounding residential properties.

Traffic associated with the project will increase the CNEL by more than 3 dB at residences adjacent to Lake Hughes Road east of Castaic Road, and at residences adjacent to Ridge Route Road from Castaic Road to Pine Crest Place. Since this exceeds the thresholds of significance established for this project, a significant impact has been assessed at these locations. However, it is not considered reasonable to mitigate this impact at ground floor locations that are protected by existing sound walls since the interior CNEL at these locations is expected to comply with the County's standard. At second floor locations that overlook these sound walls, and at first floor locations that are not protected by these walls, it is not considered to be practical or feasible to mitigate the impact since this would require upgrading existing residences with sound-rated windows.

One alternative to the proposed project has been considered in this study. This is the "No Project" alternative, under which the status quo would be maintained and the noise generated by the construction and increased traffic produced by the project would not be introduced. Therefore, there would be no impacts relative to the existing case.

Cumulative traffic increases associated with the buildout of the Northlake Master Plan and the surrounding vicinity will create additional impacts at the project site, in particular at future residences adjacent to Northlake between Ridge Route and I Street. Therefore, mitigation should be considered in the design of these residences. Such mitigation may include: setbacks from the street, walls or berms adjacent to the street, mechanical ventilation, and/or sound-rated windows and doors. An acoustical study should be required as part of the final design for all proposed residences adjacent to Northlake in order to determine the exact mitigation measures necessary to achieve compliance with the County's interior CNEL standard.



2 Introduction/Project Description

The purpose of this study is to identify and assess the potential noise impacts associated with the construction and operation of the proposed Northlake VTTM 51852 development, part of the Northlake Specific Plan area in the County of Los Angeles. Refer to Figure 2-1 for the location of the study area. Northlake is located in the Castaic community east of Interstate 5 and north of Lake Hughes Road. A Specific Plan was approved in 1991 for a development consisting of nearly 4,000 residential units. VTTM 51852 represents one portion of this development and consists of 1,265 single-family detached homes and 480 condominium units.

Construction of the project will require substantial clearing and earth movement since the area consists entirely of hilly terrain. Numerous new roads will be constructed, and Ridge Route Road will be realigned and widened north of Pine Crest Place.

One alternative to the preferred project has been considered in this study. This is the “No Project” alternative.

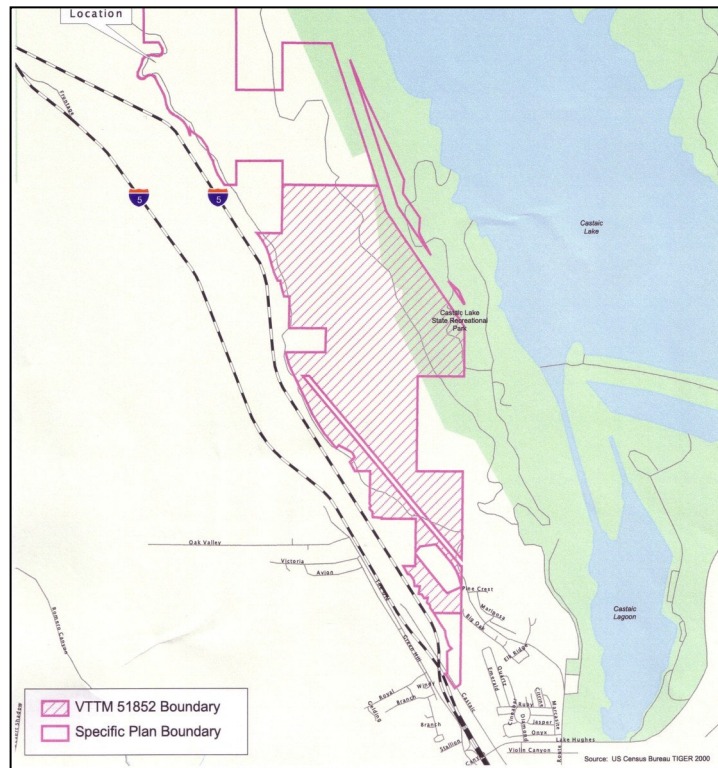


Figure 2-1. Project Study Area

3 Noise Descriptors

The following sections briefly describe the noise descriptors that will be used throughout this study:

3.1 Decibels

Sound pressures can be measured in units called microPascals (μPa). However, expressing sound levels in terms of μPa would be very cumbersome since it would require a wide range of very large numbers. For this reason, sound pressure levels are described in logarithmic units of ratios of actual sound pressures to a reference pressure squared. These units are called bels. In order to provide a finer resolution, a bel is subdivided into 10 decibels, abbreviated dB.



Since decibels are logarithmic units, sound pressure levels cannot be added or subtracted by ordinary arithmetic means. For example, if one automobile produces a sound pressure level of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB. In fact, they would combine to produce 73 dB. This same principle can be applied to other traffic quantities as well. In other words, doubling the traffic volume on a street or the speed of the traffic will increase the traffic noise level by 3 dB. Conversely, halving the traffic volume or speed will reduce the traffic noise level by 3 dB.

3.2 A-Weighting

Sound pressure level alone is not a reliable indicator of loudness. The frequency or pitch of a sound also has a substantial effect on how humans will respond. While the intensity of the sound is a purely physical quantity, the loudness or human response depends on the characteristics of the human ear.

Human hearing is limited not only to the range of audible frequencies, but also in the way it perceives the sound pressure level in that range. In general, the healthy human ear is most sensitive to sounds between 1,000 Hz and 5,000 Hz, and perceives both higher and lower frequency sounds of the same magnitude with less intensity. In order to approximate the frequency response of the human ear, a series of sound pressure level adjustments is usually applied to the sound measured by a sound level meter. The adjustments, or weighting network, are frequency dependent.

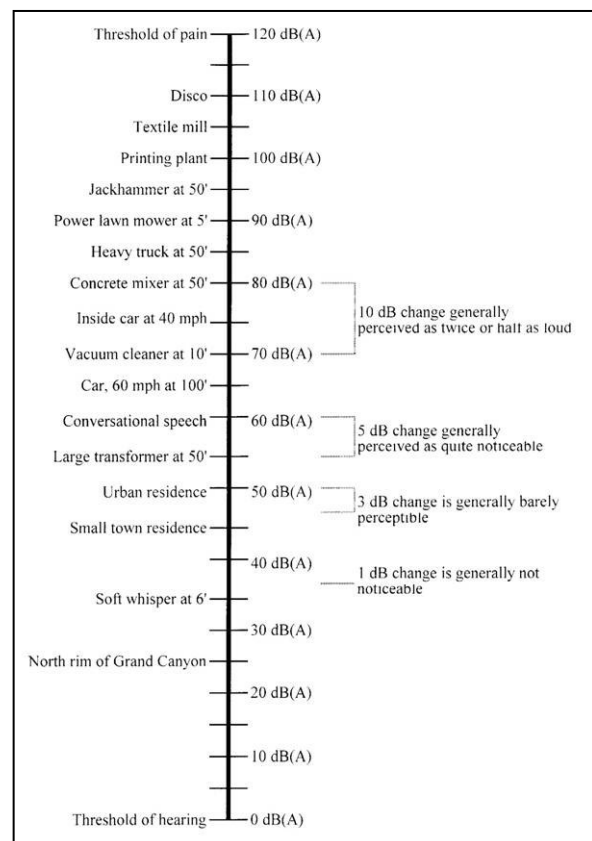


Figure 3-1. Common Noise Sources and Levels

The A-scale approximates the frequency response of the average young ear when listening to most ordinary everyday sounds. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. A range of noise levels associated with common in- and outdoor activities is shown in Figure 3-1.

The A-weighted sound level of traffic and other long-term noise-producing activities within and around a community varies considerably with time. Measurements of this varying noise level are accomplished by recording values of the A-weighted level during representative periods within a specified portion of the day.

3.3 Community Noise Equivalent Level (CNEL)

It is recognized that a given level of noise may be more or less tolerable depending on the duration of exposure experienced by an individual. There are numerous measures of noise exposure that consider not only the A-level variation of noise but also the duration of the disturbance. The State Department of Aeronautics and the California Commission on Housing and Community Development have adopted the community noise equivalent level (CNEL). This measure weights the average noise levels for the evening hours (7:00 p.m. to 10:00 p.m.), increasing them by 5 dB, and weights the late evening and morning hour noise levels (10:00 p.m. to 7:00 a.m.) by 10 dB. The daytime noise levels are combined with these weighted levels and are averaged to obtain a CNEL value. Figure 3-2 indicates the outdoor CNEL at typical locations.

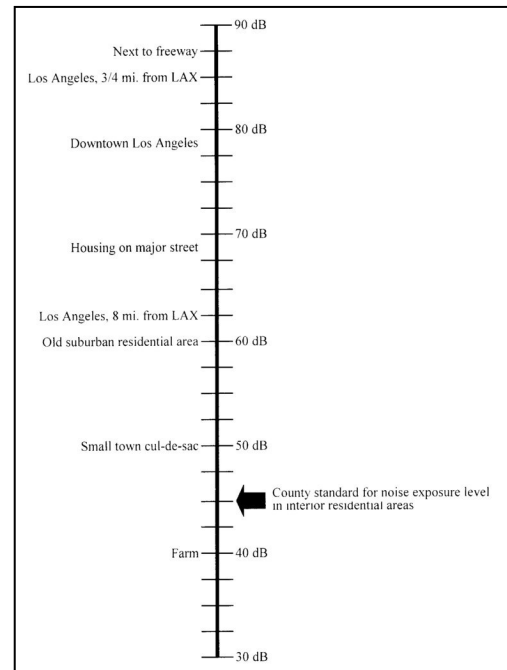


Figure 3-2. Common CNEL Levels

4 Noise Criteria

The following sections discuss the various noise criteria that have been considered for this study.

4.1 State of California Noise Insulation Standards

The California Commission on Housing and Community Development officially adopted the Noise Insulation Standards (Title 24) in 1974. The regulations became effective on August 22, 1974. The ruling states that the "interior community noise equivalent level (CNEL) attributable to exterior sources shall not exceed an annual CNEL of 45 dB in any habitable room." Additionally, the Commission specified that multifamily residential buildings or structures to be located within exterior CNEL contours of 60 dB or greater of an existing or adopted freeway, expressway, parkway, major street, thoroughfare, railroad, rapid transit line, or industrial noise source shall require an acoustical analysis showing that the building has been designed to limit intruding noise to the level prescribed (interior CNEL of 45 dB).

4.2 County of Los Angeles General Plan

The County's adopted General Plan does not provide any quantitative standards for regulating acceptable exterior and interior noise environments at residential land uses. However, the County is currently in the process of updating their General Plan. Policy N-1.2 of this unadopted plan states that residential development should be avoided in areas of the County where outdoor ambient noise levels



exceed a CNEL of 55 dB unless interior noise levels from exterior sources can be mitigated to less than 45 dB CNEL. Policy N-1.6 encourages the construction of noise barriers – either separately or in conjunction with other acoustical mitigation techniques – in new development projects where the circumstances warrant their inclusion. And finally, Policy N-1.7 encourages landscaping and vegetation berms along roadways and adjacent to other noise-generating sources as a means of increasing the absorption of noise energy and separation distance.

4.3 County of Los Angeles Municipal Code

Construction noise in the County of Los Angeles is regulated by Ordinance No. 11,773, Article V, Section 501(c), which states that the following are prohibited:

Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work between weekday hours of 7 p.m. and 7 a.m., or at any time on Sundays or holidays, such that the sound therefrom creates a noise disturbance across a residential or commercial real property line...

Vibration impacts are regulated by Article V, Section 501(d), which prohibits the following:

Operating or permitting the operation of any device that creates vibration which is above the vibration perception threshold of any individual at, or beyond the property boundary of the source if on private property or at 150' from the source if on a public space or public right of way. The perception threshold shall be a motion velocity of 0.01 inches per second over the range of 1 to 100 Hz.

5 Thresholds of Significance

Based on the noise criteria discussed above, and the CEQA guidelines, a significant impact will be assessed if any of the following conditions occur:

- ◆ The noise level generated by the project traffic increases the CNEL by 3 dB or more (a noticeable change) at existing residential areas.
- ◆ The interior CNEL exceeds 45 dB within any proposed residence constructed as part of the project.
- ◆ The construction or operation of the project exposes people to excessive groundborne vibration or groundborne noise levels.

6 Existing Noise Environment

The land uses within the study area consist of single family homes, apartments, and commercial/industrial properties. Most of the single family residences are buffered from noise by walls and fences of various heights.

6.1 Noise Measurements

In order to document the existing noise environment, measurements were obtained at six locations throughout the study area. (Refer to Figure 6-1.) The locations are identified as follows:

- #1 - At the side of Ridge Route Road. This is the approximate location of the nearest proposed homes to I-5.
- #2 - In the rear yard of 32222 Big Oak Lane, adjacent to Ridge Route Road.
- #3 - In front of 27603 W. Elk Ridge Drive near the intersection of Elk Ridge Drive and Ridge Route.
- #4 - In front of 32016 Castaic Road, at the offset of homes facing I-5.
- #5 - At the northeast corner of Diamond and Lake Hughes Road.
- #6 - At the apartments on the corner of Ridge Route Road and Violin Canyon Road.

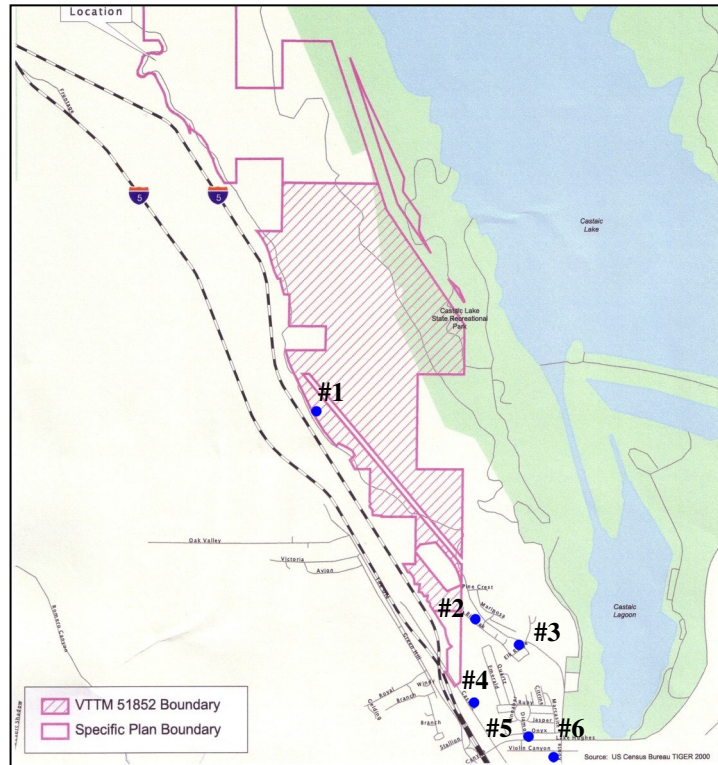


Figure 6-1. Noise Measurement Locations

At location #2 a noise measurement was obtained over a continuous two-day period, with the microphone positioned at a height of 5' above the ground. At the remaining locations the measurement was obtained for a period of 20 minutes to four hours to obtain the measurement, the microphone was positioned at a height of 5' above the ground, and extraneous noise sources (such as sirens) were excluded from the measurement by placing the sound level meter on "standby" until the noise event concluded. The results of the noise measurements, provided in Appendix I, are summarized in the following table:

*Table 6-1. Summary of Noise Measurements*

Location #	Location Description	Measurement Period	Measured Average Noise Level, dB(A)	CNEL, dB
1	Ridge Route	4 hours	66-67	Not measured
2	32222 Big Oak	48 hours	39-57	54
3	27063 W. Elk Ridge Dr.	2:34 PM to 2:54 PM	62	Not measured
4	32016 Castaic	12:29 PM to 12:50 PM	70	Not measured
5	Diamond at Lake Hughes	1:02 PM to 1:25 PM	61	Not measured
6	Violin Canyon	1:37 PM to 1:58 PM	62	Not measured

The instrumentation used to obtain the noise measurements consisted of integrating sound level meters (Model 820) and acoustical calibrators (Model CAL250) manufactured by Larson Davis Laboratories. The accuracy of the calibrators is maintained through a program established by the manufacturer, and is traceable to the National Bureau of Standards. All instrumentation meets the requirements of the American National Standards Institute (ANSI) S1.4-1971.

6.2 Traffic

The results of the noise measurements were used to calibrate a proprietary version of the highway traffic noise prediction model developed by the Federal Highway Administration (as described in report FHWA-RD-77-108). The model was used to estimate existing traffic noise levels adjacent to various reaches of street in the study area based on traffic volumes, speeds, truck mix, site conditions, and distance from the roadway to the receptor. The California reference energy mean emission (Calveno) levels developed by Caltrans were used in the prediction model. The results of the modeling effort, provided in Appendix II, are summarized in the following table:

Table 6-2. Existing Traffic Noise Levels

Street	Unmitigated CNEL @ 50'	Distance to CNEL Contour		
		60 dB	65 dB	70 dB
Castaic Road				
North of Lake Hughes	64.5 dB	120'	---	---
South of Lake Hughes	68.0 dB	215'	90'	---
South of Ridge Route	62.0 dB	75'	---	---
Lake Hughes Road				
West of Castaic	68.0 dB	215'	90'	---
East of Castaic	63.0 dB	90'	---	---
Parker Road				
West of I-5 Southbound Ramp	65.0 dB	130'	50'	---
Ridge Route Road				
North of Castaic Lake	61.5 dB	69'	---	---
North of Lake Hughes	61.5 dB	69'	---	---
North of Castaic	62.5 dB	83'	---	---



Street	Unmitigated CNEL @ 50'	Distance to CNEL Contour		
		60 dB	65 dB	70 dB
East of I-5 Northbound Ramp	67.0 dB	185'	75'	---
Between I-5 Ramps	66.5 dB	170'	69'	---
<i>Sloan Canyon Road</i>				
East of The Old Road	67.0 dB	185'	75'	---
<i>The Old Road</i>				
North of Sloan Canyon	70.0 dB	100'	78'	50'

At residential locations that are protected by existing 5'- to 6'-high walls, the CNEL is about 5 dB less than the values indicated in Table 6-2.

7 Future Conditions in the Study Area with Project

For ease of presentation, the discussion of future conditions in the study area with the project has been divided into two sections: construction and operation. Each is discussed in greater detail in the following sections.

7.1 Construction

As discussed in Section 2 of this report (*Introduction/Project Description*), the construction of the project will require substantial clearing and earth movement, as well as paving new streets and constructing the residential units. Construction will occur only between 7:00 a.m. and 7:00 p.m. Monday through Saturday. There will be no construction activities on Sundays or legal holidays. As a result, no significant impacts are associated with the construction of the proposed project.

Construction noise levels in the vicinity of the project will fluctuate depending on the particular type, number and duration of use of various pieces of construction equipment. The exposure of persons to the periodic increase in noise levels will be short-term. Table 7-1 shows typical noise levels associated with various types of construction-related machinery.

Groundborne vibration is measured in terms of the velocity of the vibration oscillations. As with noise, a logarithmic decibel scale (VdB) is used to quantify vibration intensity. When groundborne vibration exceeds 75 to 80 VdB, it is usually perceived as annoying to building occupants. The degree of annoyance is dependent upon type of land use, individual sensitivity to vibration, and the frequency of the vibration events. Typically, vibration levels must exceed 100 VdB before building damage occurs.

Construction of the project will not involve pile-driving activities, the use of jackhammers or pavement breakers. As a result, it is unlikely that construction will result in perceptible, let alone excessive, groundborne vibration or groundborne noise levels.

*Table 7-1. Construction Equipment Noise Levels*

Equipment Type	Typical Average Equipment Noise Level at 50 ft. in dB(A) ¹
Air Compressor	75
Backhoe	75
Compactor	80
Concrete Mixer	80
Concrete Pump	75
Dozer	75
Generator	75
Grader	85
Loader	75
Pneumatic Tools	80
Power Hand Saw	75
Roller	80
Tractor	85
Trucks	75

Source: U. S. Environmental Protection Agency, 1971.

Notes:

1. With noise controls applied. Obtainable by selecting quieter procedures or machines and implementing noise control features such as improved mufflers, use of silencers, shields, shrouds, ducts and engine enclosures.

7.2 Operation

Using data provided by Austin-Foust Associates, an analysis was conducted to identify the future traffic noise exposures that will occur in the study area with the project. The results of the analysis are provided in Appendix II, which identifies the traffic data used in the analysis and the estimated CNEL generated by the traffic. The results are summarized in Table 7-2.

At residential locations that are protected by existing 5'- to 6'-high walls, the CNEL will be about 5 dB less than the values indicated in Table 7-2.

The changes in traffic noise exposures associated with the project can be obtained by comparing the results of Table 7-2 with those of Table 6-2. This comparison is provided in Table 7-3.

Referring to Table 7-3, traffic noise increases exceed 3 dB at residences adjacent to Lake Hughes Road east of Castaic Road, and at residences adjacent to Ridge Route Road from Castaic Road to Pine Crest Place.

Operation of the project will be passive and will not cause groundborne vibration or noise levels.



Table 7-2. Analysis of Estimated Traffic Noise Levels with Project

Street	Unmitigated CNEL @ 50'	Distance to CNEL Contour		
		60 dB	65 dB	70 dB
Castaic Road				
North of Lake Hughes	65.0 dB	130'	50'	---
South of Lake Hughes	68.0 dB	215'	90'	---
South of Ridge Route	61.0 dB	62'	---	---
Lake Hughes Road				
West of Castaic	69.0 dB	255'	110'	---
East of Castaic	66.5 dB	170'	69'	---
Parker Road				
West of I-5 Southbound Ramp	64.0 dB	110'	---	---
Ridge Route Road				
North of Castaic Lake	68.0 dB	215'	90'	---
North of Lake Hughes	68.0 dB	215'	90'	---
North of Castaic	66.0 dB	155'	62'	---
East of I-5 Northbound Ramp	68.5 dB	235'	100'	---
Between I-5 Ramps	66.5 dB	170'	69'	---
Sloan Canyon Road				
East of The Old Road	67.0 dB	185'	75'	---
The Old Road				
North of Sloan Canyon	70.0 dB	100'	78'	50'

Table 7-3. Changes in Traffic Noise Levels Due to Project

Street	Unmitigated CNEL @ 50'		Change Due to Project ¹
	Without Project	With Project	
Castaic Road			
North of Lake Hughes	64.5 dB	65.0 dB	+1.0 dB
South of Lake Hughes	68.0 dB	68.0 dB	0.0 dB
South of Ridge Route	62.0 dB	61.0 dB	-1.0 dB
Lake Hughes Road			
West of Castaic	68.0 dB	69.0 dB	+1.0 dB
East of Castaic	63.0 dB	66.5 dB	+3.5 dB
Parker Road			
West of I-5 Southbound Ramp	65.0 dB	64.0 dB	-1.0 dB
Ridge Route Road			
North of Castaic Lake	61.5 dB	68.0 dB	+6.5 dB
North of Lake Hughes	61.5 dB	68.0 dB	+6.5 dB
North of Castaic	62.5 dB	66.0 dB	+3.5 dB
East of I-5 Northbound Ramp	67.0 dB	68.5 dB	+1.5 dB
Between I-5 Ramps	66.5 dB	66.5 dB	0.0 dB
Sloan Canyon Road			
East of The Old Road	67.0 dB	67.0 dB	0.0 dB
The Old Road			
North of Sloan Canyon	70.0 dB	70.0 dB	0.0 dB
Note:			
1. Where decreases in traffic CNEL occur, it is because the street will be widened. This disperses the noise generators over a greater distance, resulting in a lower noise level.			



8 Future Conditions at the Project Site

The only arterial considered in the traffic study that is adjacent to the project site is Ridge Route Road north of Castaic Lake. Referring to Table 7-2, any future home located within 90' of the nearest travel lane will be exposed to a CNEL of up to about 68 dB. Assuming that standard building construction provides a noise reduction of about 20 dB with windows and doors closed, the interior CNEL at these future homes will be up to about 48 dB.

Some of the proposed residences along Ridge Route will also be exposed to traffic noise from the I-5 freeway. Using the measurement data obtained at location #1, and comparing it with a continuous 24-hour measurement obtained adjacent to a similar freeway (I-10), it is estimated that the CNEL at homes with line-of-sight to the freeway will be 70 dB. The estimated interior CNEL is 50 dB with standard building construction.

Operation of the project will be passive and will not cause groundborne vibration or noise levels.

9 Assessment of Impact

Using the criteria established in this study, the following provides an assessment of the impact of the proposed project:

- ◆ Construction of the project will not create a significant impact.
- ◆ Traffic noise will increase by more than 3 dB at residences adjacent to Lake Hughes Road east of Castaic Road, and at residences adjacent to Ridge Route Road from Castaic Road to Pine Crest Place. This may be a significant impact if noise control was not considered in the original design of the homes.
- ◆ Interior traffic noise levels at future homes adjacent to Ridge Route Drive will exceed the County's standard of 45 dB unless appropriate mitigation is applied.
- ◆ The construction and operation of the project will not expose people to excessive groundborne vibration or groundborne noise levels.

10 Mitigation Measures

The following measures are recommended to mitigate the significant noise impacts associated with the project.

1. Appropriate mitigation measures should be incorporated into the design of the residences adjacent to Ridge Route Drive and with line-of-sight to I-5 in order to reduce the interior CNEL to 45 dB or less. Such measures may include: setbacks from the street, walls or berms adjacent to the



street, mechanical ventilation, and/or sound-rated windows and doors. An acoustical study should be required as part of the final design for all proposed residences adjacent to Ridge Route Road and the freeway in order to determine the exact mitigation measures necessary to achieve compliance with the County's interior CNEL standard.

2. Construction activities should be scheduled only between 7 a.m. and 7 p.m. Monday through Saturday. No construction should be permitted on Sundays or legal holidays.
3. Internal combustion engines used for construction purposes should be equipped with a properly operating muffler of a type recommended by the manufacturer. Impacts tools should be shielded per manufacturer's specifications.
4. Noisy construction equipment items should be located as far as practicable from the surrounding residential properties.

11 Unmitigated Impacts

As indicated in Section 9 of this report, traffic associated with the project will increase the CNEL by more than 3 dB at residences adjacent to Lake Hughes Road east of Castaic Road, and at residences adjacent to Ridge Route Road from Castaic Road to Pine Crest Place. Since this exceeds the thresholds of significance established for this project, a significant impact has been assessed at these locations.

The existing homes adjacent to Lake Hughes Road are buffered from the traffic noise by 6'-high walls. This will reduce the exterior noise level at these locations to about 61.5 dB. (Referring to Table 7-3, the estimated CNEL without mitigation is 66.5 dB, and the 6'-high wall should reduce noise by at least 5 dB, resulting in a mitigated CNEL of 61.5 dB.) Assuming the homes were constructed with standard building techniques the interior CNEL is estimated to be 41.5 dB at ground floor rooms protected by the wall. Therefore, even though the traffic noise level will increase by more than 3 dB, it is not considered reasonable to mitigate the impact since the interior CNEL complies with the County's standard of 45 dB. At second floor rooms facing Lake Hughes Road, the interior CNEL may exceed 45 dB if these rooms were not constructed with sound-rated windows. The only effective way of mitigating the impact is to upgrade the existing windows to sound-rated assemblies. This is not considered to be a practical or feasible mitigation measure since it would require making alterations to private residences.

Along Ridge Route Road north of Castaic, there are a number of apartment buildings, a mobile home park and a single family home. Both the mobile home park and the single family home are located outside the 65 dB CNEL contour from Ridge Route. Assuming standard building construction, the interior CNEL at these properties will be less than 45 dB. Therefore, even though the traffic noise level will increase by more than 3 dB, it is not considered reasonable to mitigate the impact since the interior CNEL complies with the County's standard of 45 dB. At the apartment buildings, the interior CNEL may exceed 45 dB if the units facing the street were not constructed with sound-rated windows. The only effective way of mitigating the impact is to upgrade the existing windows to



sound-rated assemblies. This is not considered to be a practical or feasible mitigation measure since it would require making alterations to private property.

The existing homes adjacent to Ridge Route Road between Lake Hughes and Pine Crest are buffered from the traffic noise by 5'- to 6'-high walls. This will reduce the exterior noise level at these locations to about 63 dB. (Referring to Table 7-3, the estimated CNEL without mitigation is 68 dB, and the wall should reduce noise by at least 5 dB, resulting in a mitigated CNEL of 63 dB.) Assuming the homes were constructed with standard building techniques the interior CNEL is estimated to be 43 dB at ground floor rooms protected by the wall. Therefore, even though the traffic noise level will increase by more than 3 dB, it is not considered reasonable to mitigate the impact since the interior CNEL complies with the County's standard of 45 dB. At second floor rooms facing Ridge Route Road, the interior CNEL may exceed 45 dB if these rooms were not constructed with sound-rated windows, and if they are located less than 90' from the nearest travel lane. The only effective way of mitigating the impact is to upgrade the existing windows to sound-rated assemblies. This is not considered to be a practical or feasible mitigation measure since it would require making alterations to private residences.

12 Project Alternative

The only alternative considered in this study is the "No Project" alternative. Under this alternative, the status quo would be maintained and the noise generated by the construction and the increased traffic produced by the project would not be introduced. Therefore, the future noise conditions in the study area would be the same as identified in Section 6. No impacts would be assessed and no mitigation would be required.

13 Cumulative Impacts

Cumulative noise impacts are assessed in the study area using data provided by Austin-Foust Associates for buildout conditions. These conditions assume the buildout of the Northlake Specific Plan area and the surrounding vicinity. An analysis was conducted to identify the noise exposures that will occur for buildout conditions at the project site. (Note that the analysis was not conducted for the entire study area since the impacts are only marginally a result of traffic increases associated with the project considered in this study.) The results of our analysis are provided in Appendix II, and are summarized in Table 13-1.

As indicated in Table 13-1, future homes located within 62' to 100' of the nearest travel lane of Northlake will be exposed to an exterior CNEL exceeding 65 dB. With standard building construction, the interior CNEL will exceed 45 dB. Therefore, mitigation should be considered in the design of the residences adjacent to Northlake between Ridge Route and I Street. Such mitigation may include: setbacks from the street, walls or berms adjacent to the street, mechanical ventilation, and/or sound-rated windows and doors. An acoustical study should be required as part of the final



design for all proposed residences adjacent to Northlake in order to determine the exact mitigation measures necessary to achieve compliance with the County's interior CNEL standard.

Table 13-1. Analysis of Estimated Traffic Noise Levels at Project Site with Buildout Conditions

Street	Unmitigated CNEL @ 50'	Distance to CNEL Contour		
		60 dB	65 dB	70 dB
Northlake				
North of Ridge Route	68.5 dB	235'	100'	---
North of H Street	68.0 dB	215'	90'	---
North of A Street	66.0 dB	155'	62'	---
A Street				
East of Northlake	64.5 dB	120'	---	---
East of L Street	64.0 dB	110'	---	---
East of B Street	63.0 dB	90'	---	---
Ridge Route Road				
North of Northlake	62.5 dB	83'	---	---

14 References

1. *Northlake VTTM 51852 Traffic Impact Analysis*. Austin-Foust Associates, Inc. April 2004.
2. NorthLake J007 Site Plan. BonTerra Consulting.
3. NorthLake J007 Aerial Photograph. BonTerra Consulting.
4. SunCal J013 Plan. BonTerra Consulting.
5. *FHWA Highway Traffic Noise Prediction Model*. Federal Highway Administration Report No. FHWA-RD-77-108. December 1978.

APPENDIX I

Noise Measurements

Table I-1. Noise Survey

Project: Northlake Specific Plan

Position: #1, On site by existing water tank

Date: May 13, 2004

Time: Noted

Noise Source: Traffic on I-5 freeway

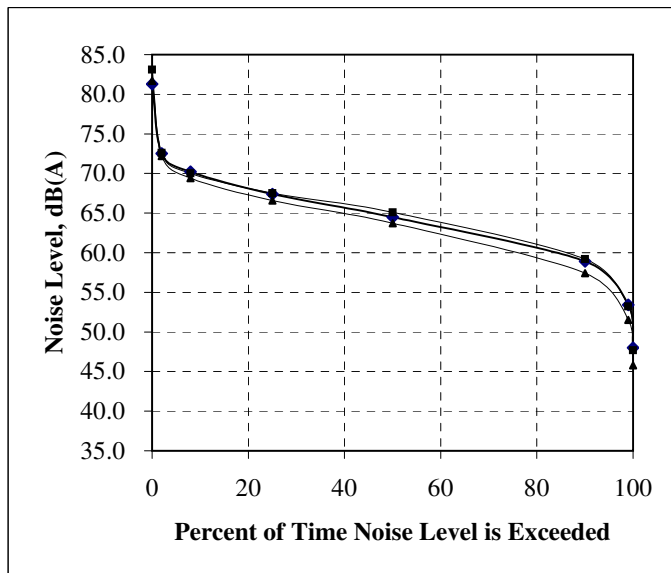
Distance: 20' from curb of Ridge Route

SLM Height: 5'

LD 820 S/N: 0996

LD CAL250
Calibrator S/N: 2966

Operator: Cynthia M. Bordash



n*	Measurement Period		
	1:33 PM to 2:33 PM	2:34 PM to 3:34 PM	3:35 PM to 4:35 PM
Ln	Ln	Ln	Ln
2	72.5	72.6	72.2
8	70.2	70.0	69.4
25	67.4	67.5	66.6
50	64.5	65.1	63.7
90	58.9	59.2	57.4
99	53.4	53.2	51.5
Leq	66.5	66.7	65.7
Lmax	81.3	83.1	81.7
Lmin	48.0	47.7	45.8

* Leq is the average sound level during the measurement period.

Ln is the sound level exceeded n% of the time during the measurement period.

Lmax and Lmin are the maximum and minimum sound levels during the measurement period.

Table I-1, cont. Noise Survey

Project: Northlake Specific Plan

Position: #1, On site by existing water tank

Date: May 13, 2004

Time: Noted

Noise Source: Traffic on I-5 freeway

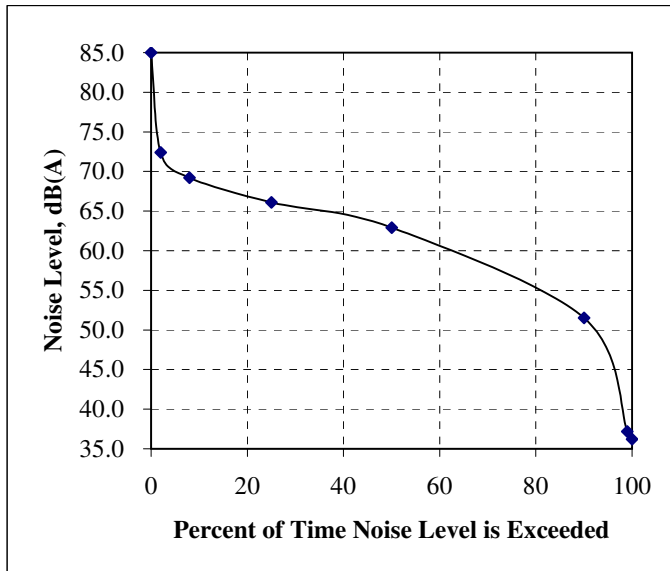
Distance: 20' from curb of Ridge Route

SLM Height: 5'

LD 820 S/N: 0996

LD CAL250
Calibrator S/N: 2966

Operator: Cynthia M. Bordash



n*	Measurement Period		
	4:36 PM to 5:36 PM	to	to
	Ln	Ln	Ln
2	72.4		
8	69.2		
25	66.1		
50	62.9		
90	51.5		
99	37.2		
Leq	65.7		
Lmax	85.0		
Lmin	36.2		

* Leq is the average sound level during the measurement period.

Ln is the sound level exceeded n% of the time during the measurement period.

Lmax and Lmin are the maximum and minimum sound levels during the measurement period.

Table I-2. Measured Hourly Noise Levels & Community Noise Equivalent Level, CNEL

Project: Northlake Specific Plan
 Location: Rear yard, 32222 Big Oak Lane
 Date: May 11-12, 2004

Measurement Period	Hourly Noise Level, dB(A)		Measurement Period	Hourly Noise Level, dB(A)
12:00 am - 1:00 am	39.2		12:00 pm - 1:00 pm	52.6
1:00 am - 2:00 am	42.9		1:00 pm - 2:00 pm	48.6
2:00 am - 3:00 am	42.4		2:00 pm - 3:00 pm	52.5
3:00 am - 4:00 am	44.5		3:00 pm - 4:00 pm	48.6
4:00 am - 5:00 am	46.5		4:00 pm - 5:00 pm	55.3
5:00 am - 6:00 am	51.1		5:00 pm - 6:00 pm	49.0
6:00 am - 7:00 am	51.0		6:00 pm - 7:00 pm	52.0
7:00 am - 8:00 am	56.6		7:00 pm - 8:00 pm	44.8
8:00 am - 9:00 am	52.0		8:00 pm - 9:00 pm	46.5
9:00 am - 10:00 am	49.6		9:00 pm - 10:00 pm	43.6
10:00 am - 11:00 am	47.7		10:00 pm - 11:00 pm	43.6
11:00 am - 12:00 pm	50.5		11:00 pm - 12:00 am	41.9
CNEL:				54.2

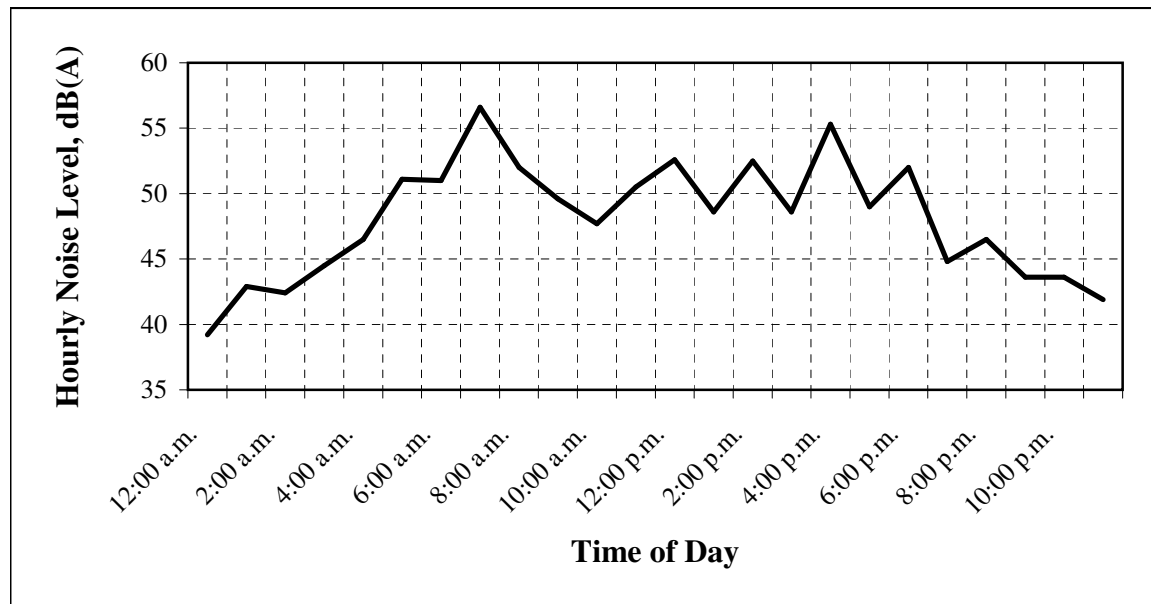


Table I-3. Noise Survey

Project: Northlake Specific Plan

Position: #3, 27603 W. Elk Ridge Dr.

Date: May 11, 2004

Time: Noted

Noise Source: Traffic on Ridge Route Rd.

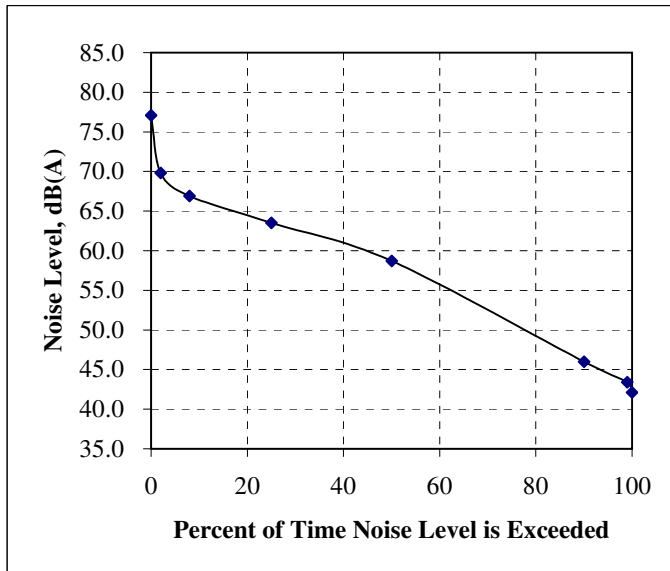
Distance: 38' from curb of Ridge Route Rd.

SLM Height: 5'

LD 820 S/N: 0996

LD CAL250
Calibrator S/N: 2966

Operator: Cynthia M. Bordash



	Measurement Period		
	2:34 PM to 2:50 PM	to	to
n*	Ln	Ln	Ln
2	69.8		
8	66.9		
25	63.5		
50	58.7		
90	46.0		
99	43.4		
Leq	62.4		
Lmax	77.1		
Lmin	42.1		

* Leq is the average sound level during the measurement period.

Ln is the sound level exceeded n% of the time during the measurement period.

Lmax and Lmin are the maximum and minimum sound levels during the measurement period.

Table I-4. Noise Survey

Project: Northlake Specific Plan

Position: #4, 32016 Castaic Rd.

Date: May 11, 2004

Time: Noted

Noise Source: Traffic on N. Castaic Rd.

Distance: 53' from curb of N. Castaic Rd.

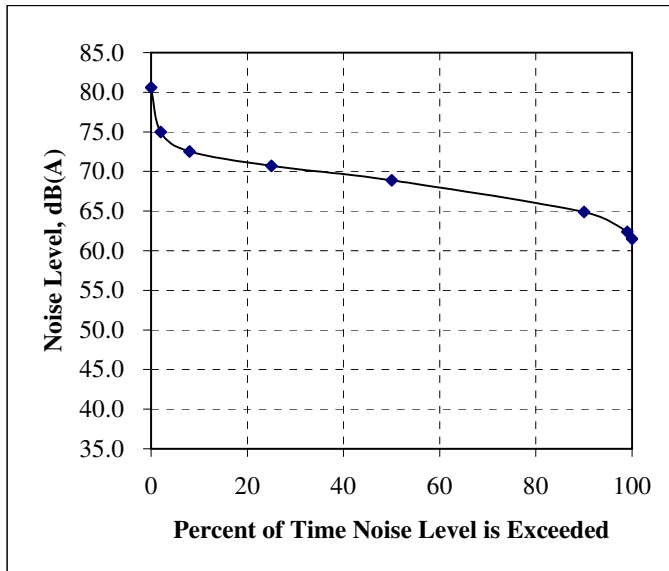
SLM Height: 5'

LD 820 S/N: 0996

LD CAL250

Calibrator S/N: 2966

Operator: Cynthia M. Bordash



	Measurement Period		
	12:29 PM to 12:50 PM	to	to
n*	Ln	Ln	Ln
2	75.0		
8	72.5		
25	70.7		
50	68.9		
90	64.9		
99	62.4		
Leq	69.9		
Lmax	80.6		
Lmin	61.5		

* Leq is the average sound level during the measurement period.

Ln is the sound level exceeded n% of the time during the measurement period.

Lmax and Lmin are the maximum and minimum sound levels during the measurement period.

Table I-5. Noise Survey

Project: Northlake Specific Plan

Position: #5, 27592 Onyx

Date: May 11, 2004

Time: Noted

Noise Source: Traffic on Lake Hughes Rd.

Distance: 73' from curb of Lake Hughes Rd.

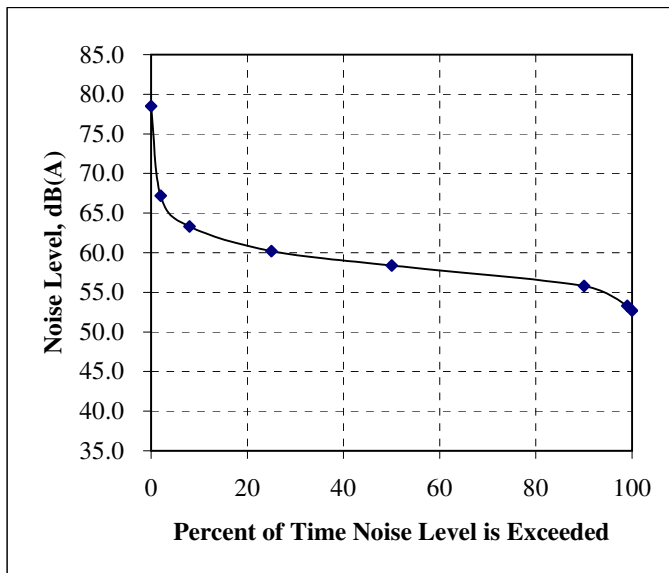
SLM Height: 5'

LD 820 S/N: 0996

LD CAL250

Calibrator S/N: 2966

Operator: Cynthia M. Bordash



n*	Measurement Period		
	1:02 PM to 1:25 PM	to	to
Ln	Ln	Ln	Ln
2	67.2		
8	63.3		
25	60.2		
50	58.4		
90	55.8		
99	53.3		
Leq	60.8		
Lmax	78.5		
Lmin	52.7		

* Leq is the average sound level during the measurement period.

Ln is the sound level exceeded n% of the time during the measurement period.

Lmax and Lmin are the maximum and minimum sound levels during the measurement period.

Table I-6. Noise Survey

Project: Northlake Specific Plan

Position: #6, 27500 Violin Canyon Rd.

Date: May 11, 2004

Time: Noted

Noise Source: Traffic on S. Ridge Route

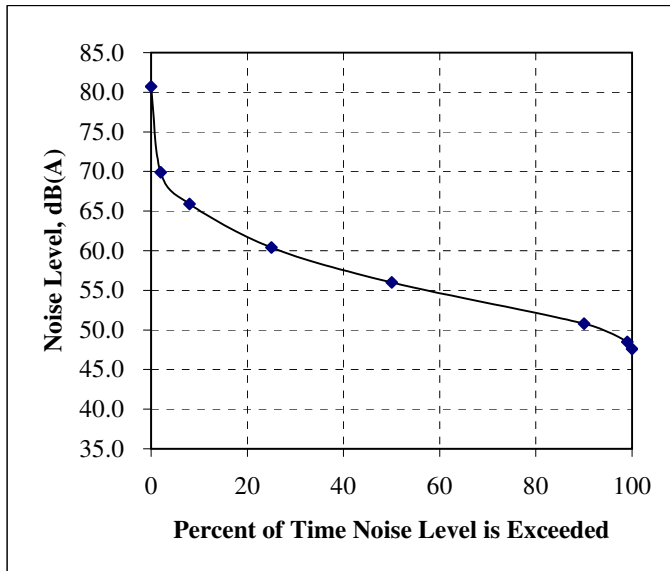
Distance: 18' from curb on Ridge Route

SLM Height: 5'

LD 820 S/N: 0996

LD CAL250
Calibrator S/N: 2966

Operator: Cynthia M. Bordash



n*	Measurement Period		
	1:37 PM to 1:58 PM	to	to
n*	Ln	Ln	Ln
2	69.9		
8	65.9		
25	60.4		
50	56.0		
90	50.8		
99	48.5		
Leq	61.7		
Lmax	80.7		
Lmin	47.6		

* Leq is the average sound level during the measurement period.

Ln is the sound level exceeded n% of the time during the measurement period.

Lmax and Lmin are the maximum and minimum sound levels during the measurement period.

APPENDIX II

Traffic Noise Analysis

Table II-1. Distance to Existing Unmitigated CNEL Contour Lines, Northlake Specific Plan

Arterial / Reach	Arterial Type*	Speed Limit, mph	Elev.	% Trucks		Avg. Daily Traffic 2003	CNEL @ 50' From Near Lane C/L 2003	Distance to Existing CNEL Contour Lines From Near Lane Centerline, feet				
				Med.	Hvy			60dB	65dB	70dB	75dB	80dB
Castaic Road												
North of Lake Hughes	1	35	AT	2.0%	2.0%	6,000	64.5 dB	120'	---	---	---	---
South of Lake Hughes	4	35	AT	5.0%	5.0%	11,000	68.0 dB	215'	90'	---	---	---
South of Ridge Route	1	35	AT	5.0%	5.0%	2,000	62.0 dB	75'	---	---	---	---
Interstate 5 Freeway												
South of Ridge Route	7	65	AT	4.4%	21.2%	82,000	82.5 dB	1,325'	810'	428'	200'	83'
North of Ridge Route	7	65	AT	4.4%	21.2%	66,000	81.5 dB	1,200'	720'	368'	170'	69'
North of Lake Hughes	7	65	AT	4.4%	21.2%	64,000	81.5 dB	1,200'	720'	368'	170'	69'
Lake Hughes Road												
West of Castaic	4	35	AT	2.0%	2.0%	20,000	68.0 dB	215'	90'	---	---	---
East of Castaic	4	35	AT	2.0%	2.0%	6,000	63.0 dB	90'	---	---	---	---
Parker Road												
West of I-5 Southbound Ramp	1	35	AT	2.0%	2.0%	7,000	65.0 dB	130'	50'	---	---	---
Ridge Route Road												
North of Castaic Lake	5	40	AT	1.8%	0.7%	4,000	61.5 dB	69'	---	---	---	---
North of Lake Hughes	5	40	AT	1.8%	0.7%	4,000	61.5 dB	69'	---	---	---	---
North of Castaic	4	35	AT	2.0%	2.0%	5,000	62.5 dB	83'	---	---	---	---
East of I-5 Northbound Ramp	4	35	AT	2.0%	2.0%	16,000	67.0 dB	185'	75'	---	---	---
Between I-5 Ramps	1	35	AT	2.0%	2.0%	11,000	66.5 dB	170'	69'	---	---	---
Sloan Canyon Road												
East of The Old Road	1	35	AT	2.0%	2.0%	12,000	67.0 dB	185'	75'	---	---	---
The Old Road												
North of Sloan Canyon	3	55	ABOVE	2.0%	2.0%	10,000	70.0 dB	100'	78'	50'	---	---

* Arterial Types: 1) 2 lanes, 35 mph or less; 2) 2 lanes, 40 mph; 3) 2 lanes, 45 mph or more; 4) 4-6 lanes, 35 mph or less; 5) 4-6 lanes, 40 mph; 6) 4-6 lanes, 45 mph or more; 7) 4-6 lane freeway, 55 mph or more; 8) 8 lane freeway, 55 mph or more.

Notes:

AT, 'ABOVE', and 'BELOW' refer to the elevation of the surrounding area relative to the arterial.

Table II-2. Distance to Existing+Project Unmitigated CNEL Contour Lines, Northlake Specific Plan

Arterial / Reach	Arterial Type*	Speed Limit, mph	Elev.	% Trucks		Avg. Daily Traffic 2007	CNEL @ 50' From Near Lane C/L 2007	Distance to Existing + Project CNEL Contour Lines From Near Lane Centerline, feet				
				Med.	Hvy			60dB	65dB	70dB	75dB	80dB
Castaic Road												
North of Lake Hughes	1	35	AT	2.0%	2.0%	7,000	65.0 dB	130'	50'	---	---	---
South of Lake Hughes	4	35	AT	5.0%	5.0%	12,000	68.0 dB	215'	90'	---	---	---
South of Ridge Route	4	35	AT	5.0%	5.0%	2,000	61.0 dB	62'	---	---	---	---
Interstate 5 Freeway												
South of Ridge Route	7	65	AT	4.4%	21.2%	82,000	82.5 dB	1,325'	810'	428'	200'	83'
North of Ridge Route	7	65	AT	4.4%	21.2%	66,000	81.5 dB	1,200'	720'	368'	170'	69'
North of Lake Hughes	7	65	AT	4.4%	21.2%	64,000	81.5 dB	1,200'	720'	368'	170'	69'
Lake Hughes Road												
West of Castaic	4	35	AT	2.0%	2.0%	25,000	69.0 dB	255'	110'	---	---	---
East of Castaic	4	35	AT	2.0%	2.0%	13,000	66.5 dB	170'	69'	---	---	---
Parker Road												
West of I-5 Southbound Ramp	4	35	AT	2.0%	2.0%	7,000	64.0 dB	110'	---	---	---	---
Ridge Route Road												
North of Castaic Lake	5	40	AT	1.8%	0.7%	18,000	68.0 dB	215'	90'	---	---	---
North of Lake Hughes	5	40	AT	1.8%	0.7%	18,000	68.0 dB	215'	90'	---	---	---
North of Castaic	4	35	AT	2.0%	2.0%	12,000	66.0 dB	155'	62'	---	---	---
East of I-5 Northbound Ramp	4	35	AT	2.0%	2.0%	23,000	68.5 dB	235'	100'	---	---	---
Between I-5 Ramps	4	35	AT	2.0%	2.0%	14,000	66.5 dB	170'	69'	---	---	---
Sloan Canyon Road												
East of The Old Road	4	35	AT	2.0%	2.0%	15,000	67.0 dB	185'	75'	---	---	---
The Old Road												
North of Sloan Canyon	6	55	ABOVE	2.0%	2.0%	13,000	70.0 dB	100'	78'	50'	---	---

* Arterial Types: 1) 2 lanes, 35 mph or less; 2) 2 lanes, 40 mph; 3) 2 lanes, 45 mph or more; 4) 4-6 lanes, 35 mph or less; 5) 4-6 lanes, 40 mph; 6) 4-6 lanes, 45 mph or more; 7) 4-6 lane freeway, 55 mph or more; 8) 8 lane freeway, 55 mph or more.

Notes:

AT, 'ABOVE', and 'BELOW' refer to the elevation of the surrounding area relative to the arterial.

Table II-3. Distance to Buildout Unmitigated CNEL Contour Lines, Northlake Specific Plan

Arterial / Reach	Arterial Type*	Speed Limit, mph	Elev.	% Trucks		Avg. Daily Traffic Build	CNEL @ 50' From Near Lane C/L Buildout	Distance to Buildout CNEL Contour Lines From Near Lane Centerline, feet				
				Med.	Hvy			60dB	65dB	70dB	75dB	80dB
Northlake												
North of Ridge Route	4	35	AT	1.8%	0.7%	28,000	68.5 dB	235'	100'	---	---	---
North of H Street	4	35	AT	1.8%	0.7%	26,000	68.0 dB	215'	90'	---	---	---
North of A Street	4	35	AT	1.8%	0.7%	15,000	66.0 dB	155'	62'	---	---	---
A Street												
East of Northlake	1	35	AT	1.8%	0.7%	8,000	64.5 dB	120'	---	---	---	---
East of L Street	1	35	AT	1.8%	0.7%	7,000	64.0 dB	110'	---	---	---	---
East of B Street	1	35	AT	1.8%	0.7%	6,000	63.0 dB	90'	---	---	---	---
Ridge Route Road												
North of Northlake	5	40	AT	1.8%	0.7%	5,000	62.5 dB	83'	---	---	---	---

* Arterial Types: 1) 2 lanes, 35 mph or less; 2) 2 lanes, 40 mph; 3) 2 lanes, 45 mph or more; 4) 4-6 lanes, 35 mph or less; 5) 4-6 lanes, 40 mph; 6) 4-6 lanes, 45 mph or more; 7) 4-6 lane freeway, 55 mph or more; 8) 8 lane freeway, 55 mph or more.

Notes:

AT, 'ABOVE', and 'BELOW' refer to the elevation of the surrounding area relative to the arterial.